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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,230	12/19/2001	Robert P. Carlstedt	60,130-1027/01MRA0149	7385
26096	7590	08/11/2004	EXAMINER	
CARLSON, GASKEY & OLDS, P.C. 400 WEST MAPLE ROAD SUITE 350 BIRMINGHAM, MI 48009			SPISICH, GEORGE D	
			ART UNIT	PAPER NUMBER
			3616	

DATE MAILED: 08/11/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,230

Applicant(s)

CARLSTEDT ET AL.

Examiner

George D. Spisich

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 13-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/19/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Due to the new grounds of rejection of this action, the finality of the rejection of the last Office action is withdrawn.

Drawings

Upon further consideration, the drawings filed 9/15/03 and 12/19/01 are objected to because Figures 1-4 are still inconsistent in content. Figures 1 and 4 do not show elements 14 and/or 16 as they are shown in Figures 2 and 3. Reference numbers should label the same element throughout the Figures and be consistent with the specification. Also, reference numeral "18" is used twice in Figure 1. Any further inconsistencies should be corrected by the Applicant. It appears that Figs. 1 and 4 are a different embodiment than Figs. 2 and 3. Further, the changes made to Figs. 2 and 3 (on 9/15/03) are confusing. Examiners is interpreting Figs. 2 and 3 (as originally filed) as Applicant's invention and the Figs. 1 and 4 possibly should be deleted as they confuse the invention and conflict with originally filed Figs. 2 and 3. Figures 1 and 4 as shown appear to be similar to the Prior Art.

Corrected drawing sheets are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, line 5, the recitation of "a knuckle supported by said second portion of said first control arm" is unclear.

From the Specification and Drawings, Applicant is disclosing an upper and lower control arm arrangement with actuator(s) supported on the control arms, which is best represented by originally filed Figs. 2 and 3. Figs. 2 and 3 are/appear consistent with the specification and claims. Examiner is interpreting the control arms as separate elements from the actuators and not simply a portion of the actuator that is called the control arm. The actuator appears to be a different element than the control arm. Not only does the control arm (the triangular element shown in Figure 2) not appear to be shown in the Figures as supporting the knuckle, but Examiner believes that should the end of the triangular control arm be connected to and support the knuckle, it would be impossible to have actuator(s) move the connection point.

To correct this issue, in claim 1, line 5, examiner suggests deleting "by said second portion of said first control arm" and in claim 1, line 6, deleting "said second portion of said second control arm".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 8, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Abstract 62125907 (provided in Applicant's 7/19/04 IDS) in view of WO91/14609 (cited by Examiner in action mailed 6/13/03).

Abstract '907 discloses a suspension assembly which includes a frame and first and second actuators (11, 12) converging and providing a first connection for a knuckle, and a third actuator (13) providing a second connection for the knuckle.

Abstract '907 includes sensors (6,7) for detecting vehicle ride conditions and the actuators are controlled to adjust camber in response to the sensed vehicle ride conditions.

Either of the actuators is arranged as an upper or lower control arm since a plurality of actuators is shown acting as both the upper and lower control arms.

It would be obvious that this system is or would be known to include a steering linkage mechanically connected to the knuckle with the steering wheel. As the steering wheel angle is sensed, it is considered that the steering linkage position sensor is sensed.

The first and second actuators are generally coplanar.

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However, Abstract '907 does not show a separate element considered a control arm (as disclosed by the Applicant) in connection and supporting the actuators.

WO '609 discloses a suspension control arm having an actuator mounted on and generally parallel with the control arm for adjusting the camber of a vehicle wheel.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the suspension of Abstract '907 by providing the actuators support with a control arm for the added stability a control arm would provide. This arrangement would be structurally identical and work as Applicant's invention would.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japan Abstract '907 in view of WO '609 as applied to claims 1-5, 8, 9 and 11 above, and further in view of Mackle et al. (USPN 6,347,802, cited by Examiner in action mailed 6/13/03)

Abstract '907 and WO '609 have been discussed in the previous rejection.

However, Abstract '907 and WO '609 does not disclose adjusting the geometry of the suspension by sensing vehicle yaw or using a brake signal.

Mackle et al. disclose vehicle suspension arrangement having an actuator to adjust the wheel geometry based on sensed vehicle conditions. Mackle et al. disclose the vehicle conditions to include yaw rate (in col. 2, line 48) and a brake signal (in col. 3, line 12).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to monitor and sense the vehicle yaw rate, and the vehicle anti-lock brake system and interrelate this vehicle ride condition with the adjustment of the camber, caster, toe or track of the suspension of Abstract '907 in view of WO '609 as taught by Mackle et al. to achieve enhanced dynamic vehicle suspension performance.

Examiner maintains that the desire to have an active suspension that changes the geometry of the suspension (which is shown by both the Abstract '907 and WO '609) is beneficial and the teaching of adjusting the suspension geometry based on the vehicle ride conditions that are taught by Mackle et al. is obvious and able to be combined with the suspension of Abstract '907 in view of WO '609 so as to provide a better and more responsive active suspension for active geometry adjustment.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abstract '907 in view of WO '609 as applied to claims 1-5, 8, 9 and 11 above, and further in view of Gultinan (USPN 5,348,334 cited by Examiner in action mailed 6/13/03).

Abstract '907 and WO '609 have been discussed in a prior rejection. However neither specifically discloses the use of a ball joint as the connection between the actuator and the knuckle.

Gultinan teaches the use of a ball joint connection between a control arm and a knuckle.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a ball joint as the connection as taught by Gultinan in order

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to provide a connection with a greater degree of motion to allow for increased adjustability.

Claims 13-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldberg et al. (USPN 4,371,191) in view of Mackle et al. (USPN 6,347,802).

Goldberg et al. (as shown in Figure 12) disclose a suspension assembly and the method of adjusting the vehicle suspension assembly comprising the steps of providing a mechanical input from a steering wheel to spaced apart wheels (this arrangement is shown in Figure 6) and turning the wheels in response to the mechanical input, detecting vehicle ride conditions, one of which a steering wheel position sensor (S2) and manipulating first, second and third actuators in response to the vehicle ride conditions and adjusting the attitude of the wheels with the actuators to a desired position. In Figure 12, there is a top view showing the first and second actuators. In col. 15, lines 63-68, there is disclosed that the lower control arm arrangement may also be actuators, which would be the third (and fourth) actuator.

Goldberg et al. disclose a sensor (shown in Figure 6) detecting ride conditions and a controller connected to the sensor and the actuators commanding the actuators to adjust the caster, camber, toe and/or track in response to the vehicle ride conditions to achieve a desired position.

However, Goldberg et al. does not disclose the vehicle condition sensors to specifically sense yaw or include a braking sensor. Goldberg et al. does disclose the sensing of the wheel heights to detect the dynamic forces and therefore the relation of

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the vehicle body during driving. It could then be considered that these sensors detect vehicle yaw to be used to adjust the wheel geometry accordingly.

Mackle et al. (USPN 6,347,802) disclose vehicle suspension arrangement having an actuator to adjust the wheel geometry based on sensed vehicle conditions. Mackle et al. disclose the vehicle conditions to include yaw rate (in col. 2, line 48) and a brake signal (in col. 3, line 12).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Goldberg et al. to further monitor and sense the vehicle yaw rate, and the vehicle anti-lock brake system as taught by Mackle et al. and interrelate this vehicle ride condition with the adjustment of the camber, caster, toe and/or track so as to achieve enhanced dynamic vehicle suspension performance.

Response to Arguments

With respect to Applicant's argument that Goldberg does not disclose the vehicle yaw sensing and that the Examiner appears to admit that Goldberg does not show this, the Examiner maintains the rejection. Examiner was taking two stances but relying on the combination of Goldberg in view of Mackle et al. One stance was that the sensors of Goldberg although not claiming to specifically sense yaw, would be sensing vehicle tilt from the height sensors. This vehicle height sensing would then be sensing yaw under certain circumstances. However, Examiner did not rely on this interpretation and

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modified Goldberg in view of Mackle et al. Mackle et al. clearly states the specifics of sensing these vehicle conditions and it would be proper to modify the suspension of Goldberg to “enhance the dynamic performance of the vehicle suspension”.

With respect to Applicant’s argument that the references are not able to be combined, Examiner disagrees and maintains that the rejection and combination is proper. Examiner simply has pointed out an actively adjustable suspension that could also be adjusted by sensing vehicle yaw and by using a brake sensor. This is clearly shown by Mackle et al. and Examiner maintains that it is proper to use these teachings to modify the suspension arrangement of Goldberg.

With respect to Applicant’s argument that if Goldberg does in fact teach yaw detection that the teaching of Mackle et al. would be duplicative and provide no benefit. While Examiner agrees with this statement but has taken the position in the rejection that Goldberg must be modified with specific vehicle yaw sensing. Examiner has taken a position on the reference (although also shows a different interpretation of Goldberg that is not relied upon) so as to clearly provide a 103 rejection that is both proper and unarguable.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to George D. Spisich whose telephone number is (703)


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305-6495. The examiner can normally be reached on Monday to Friday 9:30-7:00 except alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Dickson can be reached on (703) 308-2089. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gds 
August 3, 2004

 8/9/04
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